

A Systematic Review Protocol: Barriers and Facilitators of Breast Cancer Screening Among Women in Sub-Saharan Africa.

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Protocol

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Abstract

Introduction: According to statistics released by the International Agency for Research on Cancer (IARC) in December 2020, female breast cancer (BC) has overtaken lung cancer as the world's most commonly diagnosed cancer. It is estimated that by 2050 the prevalence rate of breast cancer in SSA will double. Breast cancer screening aims to reduce mortalities related to cancer, and morbidity associated with advanced stages of the disease, through early detection in asymptomatic women. This study aims to review and analyze empirical and grey literature on barriers and facilitators to breast cancer screening among women in SSA.

Methods: PubMed, Web of Science, EMBASE, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) including Google scholar will be searched to identify published studies on barriers and facilitators to breast cancer screening from January 2010 to 2021. Two reviewers independently assessed the quality of all the included studies using the Mixed Methods Appraisal Tool (MMAT) version 2018.

Conclusion: We envisage that this review will adduce evidence on common barriers and facilitators to BC screening in SSA. Identifying these barriers and facilitators will help guide the initialization of effective interventions that will improve BC screening uptake among women in SSA. This review will also guide future research in developing, implementing, and evaluating appropriate interventions tailored towards increasing BC screening uptake.

Systematic review registration: Open Science Framework (OSF) registration DOI: [10.17605/OSF.IO/KY3PF](https://doi.org/10.17605/OSF.IO/KY3PF)

Introduction

Globally, over 2.1 million women are affected yearly by the ravages of breast cancer, making it the most frequent cancer among women [1]. According to statistics released by the International Agency for Research on Cancer (IARC) in December 2020, female breast cancer has overtaken lung cancer as the world's most commonly diagnosed cancer [2]. Currently, BC is considered a global public health problem due to its increasing incidence coupled with the high mortality rate among women both in developed and developing countries [1, 2]. The IARC estimated 2.3 million new breast cases in 2020 representing 11.7% of all cancer cases worldwide [2]. Out of these cases diagnosed one in every eight cancer diagnoses is breast cancer. Also, the IARC estimated in 2020 that 685,000 women across the globe died of breast cancer. Between 1990 and 2017 it was estimated that the global breast cancer cases increased by about 123.14% [3]. The GLOBOCAN cancer prediction tool estimates that by 2040 the global incidence of breast cancer cases is expected to increase more than 46% [4]. It is estimated that by 2050 the prevalence of breast cancer cases in SSA will double [5]. Currently in SSA there exist weak cancer control plans, prevention, and strategies; only a few cancer registries exist in most sub-Saharan African countries with poorly structured cancer reporting systems [6, 7]. Globally, SSA has the highest mortality of BC, with a five-year survival rate of less than 40%, compared to developed countries such as the United States with

an 86% survival rate [5]. Due to the lack of national cancer registries in SSA, the true burden of cancer incidence might probably be under-reported [8].

It is evident that early detection of BC through screening remains the most cost-effective BC control strategy and this is one of the keys to meeting the global health goals including the Sustainable Development Goals (SDGs) [6]. It is reported that in developed countries the burden of cancer has significantly reduced through well-coordinated screening programs. In fact, in America, it is recommended that every woman at risk must undergo yearly BC screening through mammography [9]. Though it has been proven that mammography is a valid and reliable BC screening method in high-income countries, the awareness, accessibility, and affordability to women has been low within poor resource countries due to out-of-pocket expenditure [6, 8].

Evidence from prior cohort studies based on mammography screening programs among women aged 50-69 years in high-income countries indicates a 23% reduction in BC-related mortality [10]. Several other studies have also reported screening via mammography reduces BC-related deaths by 15%-30% [8, 11–13]. Clinical breast examination (CBE) is a relatively simple, easy, and cost-effective method for early detection and diagnosis of BC/tumors [10]. Preliminary findings from a clustered-randomized controlled trial in Mumbai, India shows that women who are screened by CBE had early detection of BC compared to those who received no screening [14]. Also, Breast Self-Examination (BSE) is another cost-effective method for BC screening. It has been revealed that 40% of diagnosed BCs are detected through BSE, which proves the validity of the procedure in BC screening [6]. Breast cancer screening aims to reduce mortalities related to this cancer, and morbidity associated with advanced stages of the disease, through early detection in asymptomatic women. Recently, a study conducted in five sub-Saharan African countries estimated that 28–37% of breast cancer deaths could be prevented in these countries through earlier diagnosis/screening of symptomatic disease and adequate treatment [15]. Given the recent burden of BC in SSA, a more compressive and detailed understanding of the barriers and facilitators is urgently required in the prevention and planning of interventions to improve the uptake of screening. In our search in literature based on the review aim, we did not come across any existing published systematic review that has examined barriers and facilitators among women in sub-Saharan Africa on breast cancer screening.

Methods

This systematic review protocol is registered with the Open Science Framework (OSF) (Registration number: osf.io/d98y2)

Search Strategy

The review will employ the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (2020 edition) for the identification and screening of articles [16]. We will employ a comprehensive search strategy to identify various publications related to the aim of this review. The

literature search will be conducted within the following electronic databases; PubMed, Web of Science, EMBASE, and Cumulative Index to Nursing and Allied Health Literature (CINAHL via EBSCOhost). The searched period for this review will be from January 2010 to 2021.

In order to develop the preliminary search strategy, the reviewers will adopt the triple stage approach to search for published evidence [17]. The first step will involve an initial limited search in PubMed and CINAHL via EBSCOhost database. Subject terms (identified from relevant study titles and abstracts of articles) and free text terms (identified from relevant study descriptions of articles) will be employed in the development of the preliminary search strategy. Step two will involve refined second search terms which are tailored to the various databases (PubMed, CINAHL via EBSCOhost, Web of Science, and EMBASE) including Google Scholar (see additional file 1 for search strategies). In step three, the citation list of the selected studies for the systematic review will be screened for additional relevant studies. The search findings will be in the English language and will be compiled by AA and SS.

Screening of studies

All the citations of the retrieved articles will be imported into Endnote X9 (version 1.19.6) reference manager for removal of duplicates, screening, and storage. After the removal of duplicates, the title and abstracts will be screened using the standard systematic review process (inclusion and exclusion criteria) by reviewers. After title and abstract screening, full-text articles will be independently assessed for eligibility based on the inclusion and exclusion criteria by two reviewers. Articles that meet the eligibility-mentioned inclusion criteria will finally be included for data synthesis. Disagreements between the two independent reviewers on the full-text inclusion will be fully discussed and if not resolved a third researcher will be involved to mediate to bring consensus. A detailed report will be written given reasons for the exclusion of those articles from the final list of articles. Details of the selection process of the included and the excluded studies at various stages will be clearly shown in the PRISMA flow chart diagram [16] (see Additional file 2).

Selection criteria

We followed the Population, Concept, and Context (PCC) framework [18] proposed by the Joanna Briggs Institute as a tool to guide literature reviews. Inclusion and exclusion criteria are summarized in line with the JBI PCC framework (see Table 1) The search focused on studies that assessed barriers and/or facilitators to breast cancer screening among women in SSA. Studies published in English language will be included. Studies published between 2010 to 2021 will be the cut-off or study date for this review. This inclusive approach allowed for the examination of current evidence on barriers and facilitators to breast cancer screening among women in SSA.

Table 1

Population, concept and context (PCC) framework

	Inclusion Criteria	Exclusion Criteria
Population	The review will include research articles that involve women who have not been medically diagnosed with breast cancer as part of the study population.	Screening for other cancers or having a history of breast cancer. Studies that do not clearly state their study population to be women without cancer. Studies that exclusively included healthcare professionals.
Concept	The review will include studies that assessed breast cancer screening (Clinical breast examination/breast self-examination/mammography) uptake among women focusing on barriers and facilitators.	Articles that did not focus on breast cancer screening or services.
Context	Service delivery at health facilities/ Service delivery in the community within sub-Saharan Africa	

Types of studies to be included

This review will involve all originally published articles that are either quantitative qualitative or mixed methods in nature. Quantitative studies will constitute non-experimental studies including descriptive studies, descriptive cross-sectional studies, observational studies, and studies that use other quantitative methods. The qualitative studies will constitute focused group discussions (FGD), individual in-depth interviews, and other forms of interviews that meet the criteria for qualitative studies. The mixed-methods studies should comprise qualitative and quantitative designs. Studies that are published in the English language will be considered for this review. Studies published from 2010 to 2021 will be included to enable us to map up current evidence within SSA.

Data extraction

Before data extraction summary tables will be developed by reviewers to abstract key information required for the review. Four reviewers independently extract data from the included studies. The abstracted data will include the authors, country, study aim, study design, participants and sample size, type of breast cancer screening, and main findings (barriers and facilitators of BC screening) (additional file 3 on data extraction sheet). The reviewers will reconcile extracted information to make sure that extracted information will be consistent with the original studies. The reviewers will not use the summative thematic analyses developed in the original studies but will perform an independent inductive

thematic analysis. The researchers will consult each other if any aspect of the included study design was unclear.

Data analysis and synthesis

For data analysis, the researchers will adopt a higher level of thematic analysis of qualitative research in systematic reviews [19]. Thematic analysis will be employed as a qualitative synthesis method because it provides a narrative and collective understanding of the data pertaining to specific phenomena or issues and not establishing definitive causal links [20]. For data synthesis, the summaries of the results will be thoroughly read and reread to make meaning. Free line-by-line coding will be performed. Codes will be reviewed and similar codes will be categorized to form descriptive themes. The descriptive themes will be assessed to generate meaning beyond the initial data leading to the development of new, interpretive analytical themes.

Assessment of methodological quality

The Mixed Methods Appraisal Tool [21] will be used for appraising and evaluating the qualitative, quantitative, and mixed methods studies. Two reviewers will independently review the articles and assign the quality rating. Discrepancies regarding the quality assessment of the articles included will be discussed among all the authors to resolve disagreements and agree upon. There exist controversies as to whether studies that are appraised as poor quality should be excluded, as exclusion may lead to the loss of potentially relevant findings and increase bias [22, 23]. Consequently, the reviewers will not exclude any study, if the study meets the inclusion criteria.

Discussion

This review will systematically and comprehensively review and assess evidence on barriers and facilitators to breast cancer screening among women in SSA. The surge and high burden of breast cancer mortality in LMICs, especially in SSA are alarming [2]. There has been inequity in access to resources and breast cancer screening services when compared to high-income countries. This inequality in the burden is expected to increase if further interventions are not prioritized because the recent improvement in the uptake of breast cancer screening has mainly been seen in high-income countries. An opportunity to reduce the morbidity and mortality of BC is early detection among asymptomatic women in the sub-region. The significance of this review is to coalesce existing study findings on barriers and facilitators to breast cancer screening uptake to inform policy and aid to bridge the screening services in SSA. We envisage that this review will identify the most common barriers and facilitators to BC screening in SSA. Identifying these barriers and facilitators will help guide the initialization of effective interventions that will improve BC screening uptake among women in SSA. This review will also guide future research in developing, implementing, and evaluating appropriate interventions tailored towards increasing BC screening uptake. Though rigor is applied to this review protocol, likely limitations may eventuate due to

resourcing considerations and the nature of a systematic review. First, this review will include only published articles in English which might exclude relevant evidence published in other languages. Finally, authors may unintentionally omit relevant studies from this review although extensive database and hand searches will be conducted. Nonetheless, this study will provide a comprehensive insight into barriers and facilitators to breast cancer screening in SSA. The findings can also inform policy decision-making in order to improve breast cancer screening within sub-Saharan African countries. Publishing this systematic review protocol will help reduce the risk of bias by strengthening the clarity of the search strategy and reporting of the outcome.

Abbreviations

BC: Breast cancer

CINAHL: Cumulative Index to Nursing and Allied Health Literature

FGD: Focus Group Discussions

IARC: International Agency for Research on Cancer

LMICs: Low and Middle-Income Countries

MMAT: Mixed Method Appraisal Tool

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses framework

SSA: sub-Saharan Africa

WHO: World Health Organization

Declarations

Authors' contributions

VNY, AA, and RAA developed the protocol with important intellectual content from SS, SMS, JFK, RKA, AK, DSS, CAA, RA, PA, and MAA. AA, RKA, SS, PA, & MAA developed the search strategies with consultation from a medical librarian. VNY, AA, RAA, SMS, RKA, JFK and MAA drafted and critically revised the manuscript for important intellectual content. SS, SMS, JFK, RKA, DSS, CAA, AK, RA, PA, and MAA contributed to the revision of the manuscript for improvement. All authors read and approved the final version for publication.

Ethics approval and consent for publication

Not applicable

Competing interests

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Consent for publication

Not applicable

Availability of data and materials

Not applicable

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